

**Docket: ENGINE-6**

**DIRECT DRIVE CRANKING SYSTEM FOR BELT OR CHAIN-DRIVEN  
V-TWIN MOTORCYCLE ENGINES**

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**ABSTRACT OF THE DISCLOSURE**

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A method and apparatus for achieving reliability in starting V-Twin chain or belt-driven motorcycle engines using a conventional motorcycle battery and specially modified automotive cranking motor. The apparatus in its preferred embodiment utilizes a direct drive cranking motor configuration employing a cammed bearing clutch which is placed onto the engine's crankshaft along with a ring gear. The ring gear engages the geared shaft of the cranking motor directly, thereby bypassing the chain or belt-drive and thus effectively removing the main drive chain or belt from the cranking system.

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The gear ratio between the cranking motor and the ring gear may thus be selected to be optimum for the cranking motor so that the battery and cranking motor may be operated at near optimum power capabilities simultaneously. The method of the

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invention relates to converting from a remote cranking motor configuration to a direct drive cranking motor configuration to remedy the deficiencies of existing V-Twin chain or belt-driven motorcycle engines.